



## AGRICULTURAL PAPERS.

A SERIES PREPARED ESPECIALLY FOR THE "RECORD-UNION."

Presenting Instruction Contained in Lectures from the Chair of Agriculture, State University.

[SEVENTEENTH PAPER.]

Geological study seems to indicate that the entire earth was once in a state of fusion, and that the crust was formed by a gradual cooling from the surface inward. The crust could not have differed greatly at first from the solidified lava of volcanic regions, and it was undoubtedly incapable of affording nutrition to plants. Since soils are made up of finely-divided particles of rock, it is evident that the first step toward the formation of a soil as a medium in which plants should grow, was the decomposition and pulverization of this igneous matter by physical and chemical forces. The causes which have produced these results are great, although the results of their action during one of our generations are not so strikingly apparent. If, however, we take into consideration the mass of the earth which has remained uninfluenced by these agents of soil manufacture, their action has certainly been small. This insignificance can be readily accounted for by the average depth of the soil, which may be measured even in feet, with the diameter of the earth, so that the soil is in reality only a thin coating of dust over the earth's surface. The formation of soil from rock has been brought about: (1) by results of changes of temperature; (2) by the action of moving water and ice; (3) by decomposition induced by the chemical action of air and water; and (4) by the influence of ANIMAL LIFE.

It is a well known fact that by heating we increase the volume of almost every body, and that by cooling we decrease its volume. Just so the earth's crust must have been expanded while in the molten condition. When it began to cool a gradual shrinkage took place. One effect of this contraction would have been a sub-sidence of the surface, thus producing wrinkling of other portions, thus producing on the one hand sea-basins and valleys, and on the other mountain ranges. This would have been followed by a cracking or fissuring in many places of the crust itself. During this contraction and shrinkage, together with the weight of superincumbent material, immense weight was brought to bear upon the lower strata of the crust with the formation of laminated or silty rocks. Thus we see that the first changes of temperature exerted an immense influence upon the earth's crust, by the sub-sensation of the surface of the forming crust, and in the forming of many of the different modifications of rock. Besides this direct influence which the change of temperature has had upon the earth's crust, it has been the indirect cause of other or beneficial changes. In the reading action of freezing water, force is exerted which can hardly be realized. In the change from the liquid to the solid condition, the volume of water increases six to seven per cent. The water of rains seeps into and fills up the innumerable cracks and crevices of rocks and hillsides, and with the lowering of the temperature this water freezes, expands, and tears open and bursts off immense masses of rock and earth. In cold countries the effects produced by this ever-acting agency of freezing water are stupendous, while in more temperate regions its results, though variable, are not so marked. The action of freezing water separates particles of rock from the common mass, just as effectually as where the water can find its way into larger apertures. Masses of granite may be split by drilling rows of holes in it, filling them with water, and allowing the water to freeze.

THE ACTION OF MOVING ICE AND WATER Does more to perceptibly change the appearance of the earth's surface than any other cause. Although not familiar from experience with the glacial action of ice, we all know that immense masses of earth and rock are cemented up in the mountains of ice which fill the Arctic regions; and that as the action of the sun and contact with warm currents meet these masses of ice, they deposit their burdens which may have been transported hundreds of miles. The amount of detritus deposited by these masses is slight, compared to the mass which has been moved by the glacial action of ice. The seemingly motionless ice fields—in reality frozen rivers—which are formed far above the line of perpetual snow, move by a slow, intermittent motion down toward the "no frost line," which, once reached, they proceed to melt away, and disappear in numerous miniature rivers, which hurry along in their rush toward the sea. Beginning at the summit of some high mountain, the ice, which is at first but a few inches in width, continually increasing in the dense banks of snow and ice which are impregnated with masses of rock and mineral matter from the hillsides and cliffs, it steadily adds to its own bulk till there are often glaciers of a mile in depth and carrying millions of tons of foreign matter to the regions below. The middle of the glacier, moving more rapidly than the sides and bottom, grinds up, by their mutual friction, the rocks and stones imbedded in it. The moving mass of ice carries with it all that it finds in its path, until reaching the warm temperature of the lower slopes, when it melts away and deposits its mass of mud, gravel and rock.

ITS LAST RESTING PLACE,

Where they are in turn taken up by the running waters and transported to their destination. It would seem as if nature would refuse to supply our rivers with water sufficient to keep them daily pouring their billions of gallons of water into the sea. Change of temperature, again, is the agent by whose efforts much of the requisite water is supplied to the sources of the rivers. It is through its action that a continuous transfer of water from the lower to the higher altitudes is maintained. The mountain tops and high table lands are colder than the valleys below; hence clouds of water vapor are continually rising from the lower to the higher regions, where, coming in contact with the cold strata of air, they are condensed and fall as rain or snow. In these mountains are thus begun the rivulets which are to end in teeming Mississippi and Amazon. These mountain streams cut and wear their way into even solid rock, and wear out channels for themselves against whose sides and bottoms are effectually ground into every grade of fineness the rocks and boulders which are carried along by the waters in their rapid course. These streams, which are continually worn and ground off, and cliff and banks are by the action of rain and frost burst off and overturned into the stream. The grinding and scouring effects of bed and contents are mutual, and the channel is soon cleared of any inequalities, and is constantly being increased in size. Rocks, boulders, gravel and sand are deposited successively as the velocity of the current slackens, and the river reaching its settling place has its load of sand left in its path. Even when the river has reached the sea they are continually exposed to the friction of the tides and currents, so that the comminution of rocks and mineral matter goes on continually in the bed of the ocean as well as on the surface of the earth.

THE CHEMICAL ACTION OF WATER AND AIR, Although acting quietly and unnoticed, yet produces effects which, in the aggregate, are second to none in furnishing the armors' soil with the necessary inorganic

substances. When water combines chemically with a substance it is hydrated. When you slake your thirst by pouring water on it, you simply hydrate it. The new compound is generally softer, occupies a larger volume, and is more readily attacked by atmospheric air than the original substance. Many of the mineral substances which were once under the action of heat, when subjected to the action of water readily take up some water of hydration. This fact admits of our saying that the chemical effect of water on the transformation of rocks and minerals is undoubtedly quite great. Water owes most of its efficiency, however, to its solvent power, it being able to dissolve, disintegrate and gradually decompose many mineral substances. For instance, chlorite and like apatite containing soluble chlorides and other soluble salts give them up to the action of water. The solvent power of water depends of course upon the amount of surface exposed; therefore finely divided and ground up mineral matter is more perceptibly acted upon by water than it were in masses. This carbonated water readily dissolves in it. It is the solution of carbonate of lime which imparts the "hardness" to most waters of limestone regions. "Chalybeate" waters are those holding in solution the carbonate of iron. Silicates are much more readily decomposed by carbonated than by pure water.

### CARBONATED WATER

Having such a solvent power, it is easily understood why the water of soda and other mineral springs containing much carbonic acid are so largely impregnated with mineral matter. Ordinary river and rain waters contain a very small amount of carbonic acid and have a correspondingly small solvent power. Analyses made of rain water have given from 8 to 80 parts of carbonic acid in 10,000 parts of water. We see, therefore, that the amount of carbonic acid in rain waters is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We have seen that the amount of oxygen in the air is variable. River and spring waters contain more carbonic acid, but much of it is in combination with bases, as carbonates and bicarbonates of the bases, and hence can have no decided effect on the solvent power of the water. For all the absolute amount of carbonic acid is so small, yet, being spread over a large surface, the aggregate effect of its action becomes in time very considerable. Next to carbonic acid oxygen probably does more toward the disintegration of rocks and minerals than any other of the atmospheric ingredients. We

## SEMI-WEEKLY RECORD-UNION

For the Record-Union

### CLOUDS OF APRIL.

April showers floating by,  
Bank on bank of clouds rolled high,  
Let your humdrum mimes lower,  
There's no time for the repose,  
Leaves and blossoms bid you come,  
April clouds, no longer room.

Heavy hosts with silver wings,  
Anxious thoughts your fleeting brings,  
Bent on the bright, eastward road,  
Tarry on our setting sun,  
Come weep o'er us, clouds above,  
Endure us with love.

Let us feel your throbbing heart;  
Passion's flames o'er us part,  
Earth's bosom is her bower,  
Clouds, wind blown across the west,  
April showers, pass not all,  
Let your benedictions fall.

R. E.  
WENTWORTH, Costa Costa county.

### LAD'S LOVE.

[A STORY IN TWO PARTS]

#### PART II.

Five-and-twenty years is a long gap in a man's life-time. The path he is destined to travel along has plenty of time, such a lape, to run through valleys of humiliation, and up hills of difficulty; the sun and the stars, the biting rain, driving against him by the bitter wind of adversity, to blind him and make him stagger as he goes. Flowers of life are called, thorn pierce, in such a breadth of years. The character, thoughts and feelings are so changed, so carried by the chisel of time, that the man of five-and-twenty would scarce recognize himself in the lad of twenty who used to look at him from his mirror every morning, and whilst for very lightheartedness he brushed the thick locks which are now so sparse and streaked with silver lines.

All these vicissitudes of experience, all these changes had come upon Ruthven Dwytt, since that summer's night, five-and-twenty long years ago, when we saw him stand bare-headed in the mellow light to watch a woman moving swiftly through the meadow grass, which rustled under the touch of her trailing robe as she passed.

Passed—where?

Out of his ken—out of his life—though he knew it not.

For when he received Millicent's promised letter—the letter for which his very soul within him had seemed to wait—and when the thing so longed for came, it's kindly friendliness and calm sisterly interest had miffed him.

Quite miffed him, he came to think in a time to come, as he looked back upon the hasty, impulsive actions that followed. No answer was sent to Milly, and Ruthven Dwytt hurried up north to spend a month or six weeks with his own relatives without attempting to visit the red house by the lake, so determined, in fact, to try and banish from his memory the very existence of its inmates.

"Send me one line to say that you forgive me for any pain I may have caused you; and believe me, dear Ruthven, the time will come when you will look back upon all this as a passing fancy that it was well indeed should pass, and leave your life still free."

Thus had run the fateful letter. But the one line was never sent.

"I have no need to be a woman. I have been a fool, but now I am wise. I have been blind, but now I see."

Thus ran Ruthven's thoughts during that long journey north. But with time and the near approach of his departure from England came softer feelings.

Yes, he would go and say farewell to the woman who had been to him so good and true a friend; he would once more watch the river stealing along beneath the alder trees; once more wander in the garden where all old-fashioned flowers grew and blossomed prettily.

Autumn's hand had changed the aspect of the garden and river since last he had seen them. The leaves of the Virginia creeper, red, and gold, and russet-brown, were strewn upon the grass, the carpet daintily tinted; the roses were all dead; the alder trees had shed their best leaves.

Strange change of all, not a window was uncurtained, and when Ruthven rang at the porch door, the first sound that greeted him was the grating of locks and bolts.

"Are Sir Geoffrey and Miss Warner from home?" he asked of a withered old crone who blinks at him from under shaggy, white-tufted brows, and evidently bore him bitter grudge for having disturbed her from her hair, wherever that might be.

"Sir Geoffrey's dead and buried. I don't know where the lady's gone."

That was all.

Then came the grating of keys and bolts once more, and Ruthven was left out there in the dark autumn day, with the fallen leaves under his feet, and dead and dying blossoms all around him. So that kindly genial old man was gone! Death must have come suddenly, too; and Milly, how she must have suffered! To hurry home, to write, not to the "one line" she had asked for, but many lines, urgent, sympathetic, tender, was Ruthven's next proceeding. He knew of no address whence he might send, except the old house to which he had been born, to the faint hope that "He be forwarded," strongly underlined, might appeal to any conscience the crone with the bushy brows possessed; he could but wait and watch for some word of greeting during the few days that remained to him before he must start on his long journey.

He watched and waited in vain. The silence remained unbroken, and he bore that silence with him to the new land and new life in which his lot now lay—a burden heavy to be born.

Yet time did not its inevitable work of healing. Never had such stirring aspects of world and life drifted so far as Ruthven's channels! Ruthven never forgot Millicent Warner, nor yet the red house by the river, and the pleasant hours passed in the room with the wide low window that looked across the grass and flowers to the alder branches bent to kiss the ripples as they passed. He did not forget; but the picture grew dimmer, and in time—what changes may not be wrought by that silent, resistless influence men call time! Ruthven Dwytt, recalling the words of Milly's letter, "This is but a faint that will pass," looked with a sad heart at his own heart that those words were true. They had seemed cruel in a day that was past; but then he saw "as in a glass darkly," how he stood face to face with the certainty that Millicent had been cruel only to kind.

"It was no rare thing," he thought to himself, smiling at the folly of a lad's first love, "for the object of a lad's first love to be dead, or for the heart of his elder brother to have died and not known it was done."

A good and pure influence had chastened and refined her character, had kept her life free from evil; there was much reverence mingled with the tenderness that in youthful ignorance had taken for passion.

Yes; the story was neither rare nor new; and now, two years after that parting in the gloaming by the river, the real romance of a passionate love came to Ruthven Dwytt.

Millicent had swayed him, now he learned the sweetness of swaying another. Millicent had had his guide, now he was the guide of one who found all her sunshine in his smile.

Millicent's dark grave eyes had been wont to watch him with helpful interest, but not always approvingly. Alice, his girl, blue-eyed wife, would not know how to begin to chide him, much less to go on.

She studied his comfort as the one thing worth striving for; counted herself blessed among women in that he had chosen her from all the world to be forever by his side; read the books he loved, so that she might be able to speak of them with him; made, in a word, a perfect wife. But her very perfection and the utter unselfish-

ness of her devotion, she cherished, rather than helped him to fight against, a certain willful headstrong impulsiveness, that Milly, poor faithful Milly, whose honest tongue would smooth over no truth, however disagreeable, had oftentimes called his "rock ahead."

Never were happier people than Ruthven and his wife—for a time.

But the last sorrows and bitter trouble came to them, and in this wise:

A year after their marriage a child had been born to them—a boy with Ruthven's dark eyes, clear-cut features, and sunny smile. When the lad could stagger three steps across the floor and then fall into his mother's outstretched arms, Alice thought her cup of joy could brim no higher; when his baby lips began to try to lip her name she thought there was yet another note added to the exquisite music of life.

"It is the year of our Lord."

The child became the boy, the boy the youth, and then to Ruthven Dwytt and his wife Alice it was given to learn by bitter experience the truth of poor old Lear's exceeding bitterness that "sharper than a serpent's tooth is to have a thankless child."

Cuthbert, thin only son of theirs, was nothing than thankless. Is there such a thing as too much love, as well as too much hardness in the rearing and tending of a child?

The mother of this young fellow would never have allowed such to be the case. In her eyes all the wrong her boy did, all the shame and sorrow he brought upon his father and herself was the fault of some body else—first of that false friend, and then of that bad companion; never of himself. He was "too easily led," she said, "and wicked people took advantage of his gentle disposition."

Her husband said little or nothing, and for her sake, was generous and forgiving, but the time came when he grew to look older than his years; his bright began to grow to stoop. He would walk along silent and preoccupied, his eyes on the ground, the brows above them puckered in thought. More than once, when Cuthbert, flushed of face, defied and, or desponding, according to the stage of drunkenness at which he had arrived, found himself in his father's presence, that father did but turn upon his heel, look him in his private room where none—except Alice—dare follow, and there "drew his weird," in solitary, brooding silence.

He had been willful, impulsive, oftentimes lacking in patience and self-control, but he had kept his life clean and clear; he had never degraded the manhood within him; he had toiled hard at his profession; name, fame, wealth, success were his; and now, of what value did they seem in his haggard eyes?

What was to be done of this gashly "felch" of his? his lad had been born to London nearly thirty years ago to try to push his fortunes, the boy to whom Millicent Warner had been so good and strong a friend?

"I see not," he said to himself, "but that you are to be sorry about anything again. I see I have not told you her name. It is Mannerling—Miss Mannerling—for she is what I suppose would be called an 'old maid.' She is very rich, and all the poor people round about here look upon her as their best friend. Mrs. Coveney says she has, at different times, large sums of money to give to the poor in our crowded city."

He thought the hand that still lay in his was growing strangely cold, and had half a mind to call for some attendant. But, as if divining his intention, Milly gently shook her head.

"What a careless boy you were, upsetting all my cotton bobbins!" she said presently with a faint smile.

"But I have not, I assure you, picked them up again; you counted them, you know," he answered, humorizing her mood.

She muttered some words he could not catch. Surely, the hand in his was growing colder still.

Her mind was wandering back to the old home.

Once more she saw the river stealing on, whispering through the sedges, gliding beneath the alder-boughs; and Ruthven, not the life-world man who stood beside her now, but a sleek, dark-eyed boy, with a smile that was almost always suffering.

His bright breath came short and fast, Ruthven would have sought some aid, but the feeble fingers held him fast.

"Do not go," she said, "I want to battle for a moment's fresh strength; there is something else I want to say; put your head closer down to me. I am not strong, you see—and my voice fails me."

He fell upon his knees beside the couch, crushing his lips against her hands.

"Ruthven," she said softly, "you say I am poor, friendless, but it is true, but I am glad with all my heart that I have seen and known her before that slender thread has snapped in two. I want you and my dearest mother to try and believe in me just a little. It will help me more than anything else in the struggle which must come to see that you do, however little it may be. It must be hard thing for you to forget and forgive the past, and to put some faith in the future; but, dear father—try to do all these things for me."

We can most of us bear a great sorrow once we brace ourselves to meet it; but the touch of an unlooked-for joy is sometimes more than the full heart can endure.

When he had read this in his boy's letter, Ruthven Dwytt crossed the room sharply, sat down beside his desk, hid his face upon his arms, and broke out crying like a child.

Sometimes in a black and stormy sky a tiny rain appears through which struggle through sunbeams "strike the world."

The bitter home sorrow which had come upon Ruthven Dwytt and his wife Alice had oftentimes made them feel like weary travelers beneath a sunless sky.

Now came the rift overhead, and the sun of hope. Ruthven saw his wife's sad face soften to a smile; noted a new buoyancy in her step; a lifting of the misty dimness that had stolen the light from her eyes.

She was the mother of those jealous mothers who are good to see their own children. Only let her be sure that influence was for good, and she could thank heaven for it as a welcome boon. She set in her prayers the name of this new friend whom Cuthbert had grown to love; she noted that the hand which should lead him back to the lost pathway of rectitude must lead him back to her—his mother.

She felt as if her boy, innocent and loving, was about to be given back to her. She had a faint, aching pain in her heart, and it was as though the heart of the child was still aching for her.

When at last he raised his head, the face of the woman he had once loved so well was still—the hands clasped were cold—in death. [All the Year Round.]

THE QUIET HOUR.

The New First Prize—New Tangles—Word-Building.

THE NEW FIRST PRIZE—The first prize for word-building on the word "Mannerling" was \$100, and \$500 for the second, and \$300 for the third, and \$100 for the fourth, and \$50 for the fifth, and \$25 for the sixth, and \$10 for the seventh, and \$5 for the eighth, and \$2 for the ninth, and \$1 for the tenth, and \$0.50 for the eleventh, and \$0.25 for the twelfth, and \$0.125 for the thirteenth, and \$0.0625 for the fourteenth, and \$0.03125 for the fifteenth, and \$0.015625 for the sixteenth, and \$0.0078125 for the seventeenth, and \$0.00390625 for the eighteenth, and \$0.001953125 for the nineteenth, and \$0.0009765625 for the twentieth, and \$0.00048828125 for the twenty-first, and \$0.000244140625 for the twenty-second, and \$0.0001220703125 for the twenty-third, and \$0.00006103515625 for the twenty-fourth, and \$0.000030517578125 for the twenty-fifth, and \$0.0000152587890625 for the twenty-sixth, and \$0.00000762939453125 for the twenty-seventh, and \$0.000003814697265625 for the twenty-eighth, and \$0.0000019073486328125 for the twenty-ninth, and \$0.00000095367431640625 for the thirtieth, and \$0.000000476837158203125 for the thirtieth, and \$0.0000002384185791015625 for the thirtieth, and \$0.00000011920928955078125 for the thirtieth, and \$0.000000059604644775390625 for the thirtieth, and \$0.0000000298023223876953125 for the thirtieth, and \$0.00000001490116119384765625 for the thirtieth, and \$0.000000007450580596923828125 for the thirtieth, and \$0.0000000037252902984619140625 for the thirtieth, and \$0.00000000186264514923095703125 for the thirtieth, and \$0.000000000931322574615478515625 for the thirtieth, and \$0.0000000004656612873077392578125 for the thirtieth, and \$0.00000000023283064365386962890625 for the thirtieth, and \$0.000000000116415321826934814453125 for the thirtieth, and \$0.0000000000582076609134674072265625 for the thirtieth, and \$0.0000000000291038304567337036328125 for the thirtieth, and \$0.00000000001455019522836685181640625 for the thirtieth, and \$0.000000000007275097614183425908203125 for the thirtieth, and \$0.00000000000363754880709171295410625 for the thirtieth, and \$0.000000000001818774403545856475053125 for the thirtieth, and \$0.0000000000009093872017729282375265625 for the thirtieth, and \$0.00000000000045469360088646411876328125 for the thirtieth, and \$0.000000000000227346800443232059381640625 for the thirtieth, and \$0.0000000000001136734002216160296908203125 for the thirtieth, and \$0.000000000000056836700110808014845410625 for the thirtieth, and \$0.000000000000028418350055404007422703125 for the thirtieth, and \$0.000000000000014209175002720203711351640625 for the thirtieth, and \$0.0000000000000071045875001361018556758203125 for the thirtieth, and \$0.000000000000003552293750006800927839910625 for the thirtieth, and \$0.0000000000000017761468750003400469519953125 for the thirtieth, and \$0.0000000000000008880734375000170023475997640625 for the thirtieth, and \$0.00000000000000044403671875000085011748828125 for the thirtieth, and \$0.000000000000000222018359375000042505874410625 for the thirtieth, and \$0.0000000000000001110091796875000021251437203125 for the thirtieth, and \$0.0000000000000000555045898437500001062531888203125 for the thirtieth, and \$0.0000000000000000277522949218750000053125694410625 for the thirtieth, and \$0.00000000000000001387614746093750000026562534410625 for the thirtieth, and \$0.00000000000000000693807373048750000013131251710625 for the thirtieth, and \$0.000000000000000003469036865243750000006565625 for the thirtieth, and \$0.00000000000000000173451843262187500000032828125 for the thirt

## THE DAILY RECORD-UNION.

MAY 6, 1852

Meteorological Observations—Taken at Each Station at the Same Moment.

SACRAMENTO, May 5, 1852—8:32 P. M.

Places of observation.	Wind.	Direction.	Clouds.	Barom.	State of the weather.
Olympia...59.0650	N. W.	Light.	Cloudy.	70	Thund.
Portland...59.1057	N. W.	Light.	Cloudy.	70	Rain
Roseburg...59.0567	N.	Light.	Cloudy.	70	Clear
Sacramento...59.0767	N. W.	Fresh.	Cloudy.	70	Clear
S. Francisco...59.0554	N. W.	Fresh.	Cloudy.	70	Clear
Vancouver...59.0667	N. W.	Fresh.	Cloudy.	70	Clear
Los Angeles...59.0667	W. S.	Light.	Cloudy.	70	Clear
San Diego...59.0661	S. W.	Light.	Cloudy.	70	Clear

Maximum temperature, 75°; minimum, 49°.

River above low-water mark, 114°.

JAMES A. BARKWICK,

Sergeant, Signal Corps, U. S. A.

Weather Probabilities.

WASHINGTON, May 6th.—Indications for Pacific coast: Fair weather.

## SECOND EDITION.

A second edition of the RECORD-UNION is issued each day at 2 P. M., bringing the Eastern and coast news up to the hour. By this arrangement the RECORD-UNION will present the latest news obtained at all points east and north of Sacramento.

The regular morning edition of the RECORD-UNION is carried by morning trains, and is ahead of all competitors as far north as Chico, on the California and Oregon Railroad; west to Benicia, and south to Stockton, and east to Colfax, Folsom and Placerville and all intermediate places. The second edition will be found each day upon the third page.

UNQUESTIONABLY THE BEST

Family paper on the coast is the WEEKLY UNION. The reasons for this assertion may be briefly stated.

It is issued twice each week; is in two parts.

Each part is of eight close pages, thus making a sixteen of sixteen pages.

Its editorial, local and news departments are unequalled for variety, originality and ability.

It has done much to develop the agricultural, the housewife and the family circle.

Its market reports are all full, prompt and reliable.

Its literary department is especially adapted for reading, the nominaclation of pure literature and the cultivation of home talent.

It is a paper that gives the news to its readers fresher, faster, and in better form than any other weekly.

The religious, dramatic, mechanical, fashion, scientific, art and similar departments are abreast of the latest news, discovery, thought and intelligence of the day.

Many other reasons might be given, but for this time these are sufficient. The WEEKLY UNION is mailed to any address for one year, postpaid, for \$2.50.

## THIS MORNING'S NEWS.

In New York Government bonds are quoted at 121 for 4s of 1857; 115 for 4s; 101 for 5s; sterling, \$4 88/4 90; silver bars, 115.

Silver in London, 52 7/16; consols, 101 3/16; 5 per cent. United States bonds, extended, 104; 4s, 123; 4s, 118.

In San Francisco half dollars are quoted at 13; dimes at 12; Mexican dollars, 90 1/2 cents.

Mining stocks were quite dull in San Francisco yesterday. The volume of transactions was the smallest in some time. Prices were weak and lower. Utah fell to \$5—decline of \$1 from Thursday.

Sierra Nevada and Union Consolidated were without change. Montana fell to 45¢. No sales of Julia, Balfour, Imperial, California, Kentucky, Caledonia or Silver Hill.

It is doubted at Tucson, A. T., if the main body of Loew's band has been defeated by the troops.

The wife of Judge William C. Wallace died yesterday at Napa, San Joaquin county.

Nea Selma, Fresno county, yesterday, E. F. Hamner shot and killed A. McColl.

A violent sand-storm prevailed at Fresno yesterday.

Captain De Long and party have been found—all dead.

The Italian Senate has passed a bill providing for a seafarers' slate.

The ecclesiastical bill has been adopted by the lower house of the Prussian Diet as adopted by the upper house.

Great rejoicings prevail in Ireland over the change in the situation, and effigies of Forster and Gladstone are being burned.

An Alexander dispatch announces that another soldier who killed a Spanish smuggler has been found guilty at Gibraltar by an English jury.

Forster has no intention of coming to America.

A white man who was stolen by Indians in Wisconsin eighteen years ago—when a child of four years—has been identified by his brother.

More facts are being brought to light in regard to the Morey letter forgery.

Italian immigrants are arriving in New York in large numbers.

Recent frosts in Michigan have destroyed two-thirds of the fruit crop.

At Ogdensburg, N. Y., yesterday, three men were drowned by the capsizing of a rowboat.

The business failures throughout the United States during the past seven days numbered 110—a decrease of 50 from the week before.

The Chinese in California—yellow country are restive, and are ordering the settlers to leave.

All is quiet at Fort Washakie, Wyoming.

Ephraim Sherman Durfee, who in 1828 was Worshipful Master of Rochester Lodge, F. and A. M., and conferred the degrees on Morgan, died yesterday at Oakwood, Wis., aged 97 years.

In addition to the twelve colonels, there are in Arizona 2,273 enlisted men and 140 officers.

In a planing mill at Madera, Fresno county, yesterday, Egbert Tillman lost his hand.

A Board of Trade has been organized at Stockton. About six miles from Stockton the mangled remains of a young man were found yesterday on the railroad track.

Prisoners in the jail at Pendleton, Or., last evening made an unsuccessful attempt to escape.

O. V. Tousley, of Minnesota, has been nominated by the President to be Consul at Trieste.

Some of that crew at Cincinnati is greatly injuring the health of the city.

The Chinese bill was discussed at the Cabinet meeting yesterday, and the matter was continued until the next meeting.

Willis Pettit was hanged yesterday at Tulelake, Indian Territory, for the murder of Margaret Ford.

At Atlanta, Ga., yesterday, Alfred Dooly was sentenced to be hanged June 29th.

John Shaw has been sentenced at Washington to be hanged January 19, 1853.

The Arizonians are indignant at the President's proclamation, claiming that there was no necessity for it.

A fire occurred yesterday at Cardiff, Wales, causing a loss of £100,000.

At Sierra City, Sierra county, last night, a fire destroyed the Catholic church, a school and store.

The summer trotting meeting at the Chicago Driving Park promises to be a grand affair.

Rear Admiral John Rodgers died at Washington yesterday at 74 years.

Owing to the bad condition of his eyes, Lieutenant Dannerhuer will not leave St. Petersburg for several days yet.

A shock of earthquake in Granada, Spain, yesterday, destroyed several houses.

Defrees, ex Public Printer, is dangerously ill at Washington.

Readers of the RECORD-UNION will find the inside pages of to-day's issue filled with choice and interesting reading matter.

This great movement to pay the city debt by recapitalizing the interest has collapsed. The effort to depreciate the debt was made at a time when the city had no money to buy at the depreciated rate, and no one could be found to advance coin to a city imposed to discredit its own securities for the purpose of injuring its credit.

Will Ohio Republicans who have been Republi-cans from principle stay long in the Democratic party, when they go simply on a question of taxing saloons? asks the *Inter-Ocean*. And let it be asked here, if any do go, whether they will remain because one man in the party, having the power, voted a bill?

A RADING fruit-grower in this county says he employs reliable Chinese help for \$5 a week, where he cannot obtain white labor for \$9 a week. He declares that his white help must be paid every Saturday night, and that he doesn't see them again before the middle of the next week.

## THE INFLUENCE OF DARWIN ON THEOLOGY.

In reviewing the life-work of Charles Darwin upon the occasion of his death, we reviewed chiefly the scientific aspect of his doctrines and discoveries. It is necessary to a proper comprehension of his place in history, however, that his influence upon theology and upon religious dogmas and beliefs, should be not less carefully estimated. That this influence was of the most important character, no one who is familiar with the world's history during the past thirty years can doubt. Nor can it be denied that it has wrought a real revolution in human thought, notwithstanding the resistance opposed to it. When Darwin's great book on the origin of species appeared, the clergy almost instinctively denounced it, and for several years they kept up a dropping fire upon it. But the work was altogether invulnerable to such assaults. It contained too solidly framed a series of arguments to be dislodged by the specious efforts of theologians, and it convinced the intellectual world almost immediately. From that time to the present Darwinism has been the controlling influence in science and philosophy, and what is more, it has been so familiarized and brought home to the masses through the abundant expository literature which has sprung up about it, that it has completely changed the general beliefs in regard not only to the genesis of species and of the human race, but to the growth and development of society and government, and the agencies which are most potent in promoting progress. It may be fact that Darwinism has revolutionized the opinions of the civilized world upon the more important problems of civilization, and that it has had the effect of destroying the credit and credibility of nearly all the authorities upon which the churches rely for maintaining their positions.

At first the antagonism between the new doctrine and religion was declared to be irreconcilable. That however was only for a moment, before it became understood that theology could not hope to anathematize its latest enemy out of existence. When the full force of Darwin's views was realized, the more astute theologians abandoned the hostile attitude, and making a virtue of necessity, affected to accept all the new lights, saving themselves by taking the position that Theology and Science were capable of being harmonized thoroughly. It is to be observed that Darwin himself never sought to make any application of his doctrine as against theology. That was left for the theologians themselves to do. They could not rest until they had convinced everybody that it was impossible for sensible men to hold to their dogmas and Darwinism at the same time. And the result was that sensible people quietly abandoned the theological positions, and adhered to the scientific ones. For when it became a question as to which should be discarded, it necessarily followed that the views which rested upon tradition, which were contrary to experience and reason, and in every particular improbable, must give way before views which were sustained by a wonderful fabric of the most convincing evidence, and which consisted with the most careful and cautious observations throughout the historic world, and Theology became less and less credited.

Of course the Church of Rome refused to accept the new lights, that being its traditional and unavoidable policy. The only consequence of this refusal, however, has been to widen the gulf which separates Rome from the modern world, and to diminish her influence. Yet Rome has found it necessary to recognize Darwinism unofficially, and in her higher schools to teach the doctrines of evolution and natural selection, as the only alternative with abandonment by a world which will have the latest science, and will not patronize teachers which cannot give it. But the influence and spread of Darwinism were so great and swift that it soon mastered little who opposed the doctrine. It took possession of the mind of the age, and it colored and impressed every topic, from theology to legislation. In twenty-five years it has completely changed the standpoint of the principal churches. It has compelled them to modify their teachings, to surrender dogmas which were formerly cling to us in spite of all the evidence to the contrary. The remedy does not lie in the Act of the Legislature null and void, reverses the judgment of the State Supreme Court, and orders a writ of mandamus to compel the municipal authorities to do their duty; and in which the State Supreme Court had upheld this legislation, and refused all redress to the injured parties. But directly this bold example of repudiation, fortified by all the powers of the State, is brought under the jurisdiction of the Supreme Court of the United States, that tribunal brushes away the whole structure of dishonesty and fraud, declares the Act of the Legislature null and void, reverses the judgment of the State Supreme Court, and orders a writ of mandamus to compel the municipal authorities to do their duty; and in which the State Supreme Court had upheld this legislation, and refused all redress to the injured parties. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. But what fun there was in it! How many scores of thousands of grown-up boys and girls as well as young ones, have salied forth full of anticipation to see the Ravel in some of their sensational pantomimes! And how many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. There are doubtless many men in this State who remember him and his wonderful family. They often played at the old Metropolitan Theater, on Montgomery street, San Francisco. They were especially good in pantomimes like "Red Gnome," and acclimated here, a curious kind of entertainment which was a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. And how many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the legitimate drama. The ruling rests upon the fact that the Codes contain nothing to warrant the conclusion that the law regards seduction as an excuse for homicide. This is perfectly clear, and the only way to evade it is by appeal to some vague "higher law" which many of these grown-up girls and boys would admit, if they told the truth, that they enjoyed that kind of entertainment a jumble of English, French and Italian pantomimic art. They delighted in complicated tricks, in a multiplicity of traps, in surprising entrances and exits. They appeared to be invertebrates. Every member of the family could tie him or herself into knots upon occasion. The elder Ravel was a graceful and expert acrobat and athlete, and his pantomime was wonderfully expressive. The art which he excelled in was truly of a simple kind, being more akin to Punch and Judy than to the





## AGRICULTURAL.

MATTER PREPARED SPECIALLY FOR THE "RECORD-UNION."

Wash the Trees—Effects of an Agricultural Fair—Fires in the Orchards—Etc.

We last week described the method of trapping the larvae of the codling moth on the bodies or stems of trees by the use of strips or bands of paper or cloth tied about the stems. This is but one of the many means that have been found of advantage in fighting these little apple and pear pests. We now call attention to another process by which the moths may be prevented from laying their eggs in the small fruit and by which every part of the tree may be rendered obnoxious to the moth, and thus much of the fruit may be saved perfectly. Perhaps the washing here described should, in point of time, precede the setting of traps explained last week, because the worms cannot be trapped until they have been hatched from newly-laid eggs laid by the moths on the small fruit, and until they have eaten their way into such fruit and grown to full size, and then when they emerge from the fruit and seek a place to make a cocoon they are trapped in the bands around the trees. The washing and sprinkling of the trees is to prevent the moths from laying their eggs in the fruit. The material to be used must be of a nature known to be distasteful or obnoxious to the moths. Any wash that by experience has been proven to keep the moths at a distance, and that is not injurious to the tree, will answer the purpose. Of course a wash that experience has proven to be beneficial to the tree, will be equally good. The codling moth will do well to light upon our orchards by night for a week or ten days to come, or whenever they find the codling moth to be flying. If it is worth the trouble to treat the trees, then it is worth while to secure an orchard, then it is worth while also to adopt all means known to save that fruit from destruction by insect pests.

## RELIGIOUS NOTES.

The habit of some ministers to seek calls, and the decreased attachment which their flock shows very frequently to their pulpits, ought to be a warning to say,

"Pastors ought not to encourage calls for the mere sake of having them, and without a serious thought of accepting them. There are men in the ministry who strive for a Sunday in every vacant church. They make a few dollars over what they give a salary, so that at least it pays financially, and they may add to the number of their calls. These they obtain with little trouble. Raspberry and Currant, each \$2.00 doz u

CHICORY—California, 40¢ lb.; German, 60¢ lb.

COJOBS—Jobbing is made are as follows: Extra Peaches, \$2.25; \$2.50; \$2.75 and \$3.00 for the first, 2nd, 3rd, 4th, 5th, 6th, 7th and \$4 for the third size. Shipp, \$2. White and Toy

CASE GOOGES—Following is the price list of leading local canneries: White and Black Cherries, \$2.50; \$3.00; \$3.50; \$4.00; \$4.50; \$5.00; \$5.50; \$6.00; \$6.50; \$7.00; \$7.50; \$8.00; \$8.50; \$9.00; \$9.50; \$10.00; \$10.50; \$11.00; \$11.50; \$12.00; \$12.50; \$13.00; \$13.50; \$14.00; \$14.50; \$15.00; \$15.50; \$16.00; \$16.50; \$17.00; \$17.50; \$18.00; \$18.50; \$19.00; \$19.50; \$20.00; \$20.50; \$21.00; \$21.50; \$22.00; \$22.50; \$23.00; \$23.50; \$24.00; \$24.50; \$25.00; \$25.50; \$26.00; \$26.50; \$27.00; \$27.50; \$28.00; \$28.50; \$29.00; \$29.50; \$30.00; \$30.50; \$31.00; \$31.50; \$32.00; \$32.50; \$33.00; \$33.50; \$34.00; \$34.50; \$35.00; \$35.50; \$36.00; \$36.50; \$37.00; \$37.50; \$38.00; \$38.50; \$39.00; \$39.50; \$40.00; \$40.50; \$41.00; \$41.50; \$42.00; \$42.50; \$43.00; \$43.50; \$44.00; \$44.50; \$45.00; \$45.50; \$46.00; \$46.50; \$47.00; \$47.50; \$48.00; \$48.50; \$49.00; \$49.50; \$50.00; \$50.50; \$51.00; \$51.50; \$52.00; \$52.50; \$53.00; \$53.50; \$54.00; \$54.50; \$55.00; \$55.50; \$56.00; \$56.50; \$57.00; \$57.50; \$58.00; \$58.50; \$59.00; \$59.50; \$60.00; \$60.50; \$61.00; \$61.50; \$62.00; \$62.50; \$63.00; \$63.50; \$64.00; \$64.50; \$65.00; \$65.50; \$66.00; \$66.50; \$67.00; \$67.50; \$68.00; \$68.50; \$69.00; \$69.50; \$70.00; \$70.50; \$71.00; \$71.50; \$72.00; \$72.50; \$73.00; \$73.50; \$74.00; \$74.50; \$75.00; \$75.50; \$76.00; \$76.50; \$77.00; \$77.50; \$78.00; \$78.50; \$79.00; \$79.50; \$80.00; \$80.50; \$81.00; \$81.50; \$82.00; \$82.50; \$83.00; \$83.50; \$84.00; \$84.50; \$85.00; \$85.50; \$86.00; \$86.50; \$87.00; \$87.50; \$88.00; \$88.50; \$89.00; \$89.50; \$90.00; \$90.50; \$91.00; \$91.50; \$92.00; \$92.50; \$93.00; \$93.50; \$94.00; \$94.50; \$95.00; \$95.50; \$96.00; \$96.50; \$97.00; \$97.50; \$98.00; \$98.50; \$99.00; \$99.50; \$100.00; \$100.50; \$101.00; \$101.50; \$102.00; \$102.50; \$103.00; \$103.50; \$104.00; \$104.50; \$105.00; \$105.50; \$106.00; \$106.50; \$107.00; \$107.50; \$108.00; \$108.50; \$109.00; \$109.50; \$110.00; \$110.50; \$111.00; \$111.50; \$112.00; \$112.50; \$113.00; \$113.50; \$114.00; \$114.50; \$115.00; \$115.50; \$116.00; \$116.50; \$117.00; \$117.50; \$118.00; \$118.50; \$119.00; \$119.50; \$120.00; \$120.50; \$121.00; \$121.50; \$122.00; \$122.50; \$123.00; \$123.50; \$124.00; \$124.50; \$125.00; \$125.50; \$126.00; \$126.50; \$127.00; \$127.50; \$128.00; \$128.50; \$129.00; \$129.50; \$130.00; \$130.50; \$131.00; \$131.50; \$132.00; \$132.50; \$133.00; \$133.50; \$134.00; \$134.50; \$135.00; \$135.50; \$136.00; \$136.50; \$137.00; \$137.50; \$138.00; \$138.50; \$139.00; \$139.50; \$140.00; \$140.50; \$141.00; \$141.50; \$142.00; \$142.50; \$143.00; \$143.50; \$144.00; \$144.50; \$145.00; \$145.50; \$146.00; \$146.50; \$147.00; \$147.50; \$148.00; \$148.50; \$149.00; \$149.50; \$150.00; \$150.50; \$151.00; \$151.50; \$152.00; \$152.50; \$153.00; \$153.50; \$154.00; \$154.50; \$155.00; \$155.50; \$156.00; \$156.50; \$157.00; \$157.50; \$158.00; \$158.50; \$159.00; \$159.50; \$160.00; \$160.50; \$161.00; \$161.50; \$162.00; \$162.50; \$163.00; \$163.50; \$164.00; \$164.50; \$165.00; \$165.50; \$166.00; \$166.50; \$167.00; \$167.50; \$168.00; \$168.50; \$169.00; \$169.50; \$170.00; \$170.50; \$171.00; \$171.50; \$172.00; \$172.50; \$173.00; \$173.50; \$174.00; \$174.50; \$175.00; \$175.50; \$176.00; \$176.50; \$177.00; \$177.50; \$178.00; \$178.50; \$179.00; \$179.50; \$180.00; \$180.50; \$181.00; \$181.50; \$182.00; \$182.50; \$183.00; \$183.50; \$184.00; \$184.50; \$185.00; \$185.50; \$186.00; \$186.50; \$187.00; \$187.50; \$188.00; \$188.50; \$189.00; \$189.50; \$190.00; \$190.50; \$191.00; \$191.50; \$192.00; \$192.50; \$193.00; \$193.50; \$194.00; \$194.50; \$195.00; \$195.50; \$196.00; \$196.50; \$197.00; \$197.50; \$198.00; \$198.50; \$199.00; \$199.50; \$200.00; \$200.50; \$201.00; \$201.50; \$202.00; \$202.50; \$203.00; \$203.50; \$204.00; \$204.50; \$205.00; \$205.50; \$206.00; \$206.50; \$207.00; \$207.50; \$208.00; \$208.50; \$209.00; \$209.50; \$210.00; \$210.50; \$211.00; \$211.50; \$212.00; \$212.50; \$213.00; \$213.50; \$214.00; \$214.50; \$215.00; \$215.50; \$216.00; \$216.50; \$217.00; \$217.50; \$218.00; \$218.50; \$219.00; \$219.50; \$220.00; \$220.50; \$221.00; \$221.50; \$222.00; \$222.50; \$223.00; \$223.50; \$224.00; \$224.50; \$225.00; \$225.50; \$226.00; \$226.50; \$227.00; \$227.50; \$228.00; \$228.50; \$229.00; \$229.50; \$230.00; \$230.50; \$231.00; \$231.50; \$232.00; \$232.50; \$233.00; \$233.50; \$234.00; \$234.50; \$235.00; \$235.50; \$236.00; \$236.50; \$237.00; \$237.50; \$238.00; \$238.50; \$239.00; \$239.50; \$240.00; \$240.50; \$241.00; \$241.50; \$242.00; \$242.50; \$243.00; \$243.50; \$244.00; \$244.50; \$245.00; \$245.50; \$246.00; \$246.50; \$247.00; \$247.50; \$248.00; \$248.50; \$249.00; \$249.50; \$250.00; \$250.50; \$251.00; \$251.50; \$252.00; \$252.50; \$253.00; \$253.50; \$254.00; \$254.50; \$255.00; \$255.50; \$256.00; \$256.50; \$257.00; \$257.50; \$258.00; \$258.50; \$259.00; \$259.50; \$260.00; \$260.50; \$261.00; \$261.50; \$262.00; \$262.50; \$263.00; \$263.50; \$264.00; \$264.50; \$265.00; \$265.50; \$266.00; \$266.50; \$267.00; \$267.50; \$268.00; \$268.50; \$269.00; \$269.50; \$270.00; \$270.50; \$271.00; \$271.50; \$272.00; \$272.50; \$273.00; \$273.50; \$274.00; \$274.50; \$275.00; \$275.50; \$276.00; \$276.50; \$277.00; \$277.50; \$278.00; \$278.50; \$279.00; \$279.50; \$280.00; \$280.50; \$281.00; \$281.50; \$282.00; \$282.50; \$283.00; \$283.50; \$284.00; \$284.50; \$285.00; \$285.50; \$286.00; \$286.50; \$287.00; \$287.50; \$288.00; \$288.50; \$289.00; \$289.50; \$290.00; \$290.50; \$291.00; \$291.50; \$292.00; \$292.50; \$293.00; \$293.50; \$294.00; \$294.50; \$295.00; \$295.50; \$296.00; \$296.50; \$297.00; \$297.50; \$298.00; \$298.50; \$299.00; \$299.50; \$300.00; \$300.50; \$301.00; \$301.50; \$302.00; \$302.50; \$303.00; \$303.50; \$304.00; \$304.50; \$305.00; \$305.50; \$306.00; \$306.50; \$307.00; \$307.50; \$308.00; \$308.50; \$309.00; \$309.50; \$310.00; \$310.50; \$311.00; \$311.50; \$312.00; \$312.50; \$313.00; \$313.50; \$314.00; \$314.50; \$315.00; \$315.50; \$316.00; \$316.50; \$317.00; \$317.50; \$318.00; \$318.50; \$319.00; \$319.50; \$320.00; \$320.50; \$321.00; \$321.50; \$322.00; \$322.50; \$323.00; \$323.50; \$324.00; \$324.50; \$325.00; \$325.50; \$326.00; \$326.50; \$327.00; \$327.50; \$328.00; \$328.50; \$329.00; \$329.50; \$330.00; \$330.50; \$331.00; \$331.50; \$332.00; \$332.50; \$333.00; \$333.50; \$334.00; \$334.50; \$335.00; \$335.50; \$336.00; \$336.50; \$337.00; \$337.50; \$338.00; \$338.50; \$339.00; \$339.50; \$340.00; \$340.50; \$341.00; \$341.50; \$342.00; \$342.50; \$343.00; \$343.50; \$344.00; \$344.50; \$345.00; \$345.50; \$346.00; \$346.50; \$347.00; \$347.50; \$348.00; \$348.50; \$349.00; \$349.50; \$350.00; \$350.50; \$351.00; \$351.50; \$352.00; \$352.50; \$353.00; \$353.50; \$354.00; \$354.50; \$355.00; \$355.50; \$356.00; \$356.50; \$357.00; \$357.50; \$358.00; \$358.50; \$359.00; \$359.50; \$360.00; \$360.50; \$361.00; \$361.50; \$362.00; \$362.50; \$363.00; \$363.50; \$364.00; \$364.50; \$365.00; \$365.50; \$366.00; \$366.50; \$367.00; \$367.50; \$368.00; \$368.50; \$369.00; \$369.50; \$370.00; \$370.50; \$371.00; \$371.50; \$372.00; \$372.50; \$373.00; \$373.50; \$374.00; \$374.50; \$375.00; \$375.50; \$376.00; \$376.50; \$377.00; \$377.50; \$378.00; \$378.50; \$379.00; \$379.50; \$380.00; \$380.50; \$381.00; \$381.50; \$382.00; \$382.50; \$383.00; \$383.50; \$384.00; \$384.50; \$385.00; \$385.50; \$386.00; \$386.50; \$387.00; \$387.50; \$388.00; \$388.50; \$389.00; \$389.50; \$390.00; \$390.50; \$391.00; \$391.50; \$392.00; \$392.50; \$393.00; \$393.50; \$394.00; \$394.50; \$395.00; \$395.50; \$396.00; \$396.50; \$397.00; \$397.50; \$398.00; \$398.50; \$399.00; \$399.50; \$400.00; \$400.50; \$401.00; \$401.50; \$402.00; \$402.50; \$403.00; \$403.50; \$404.00; \$404.50; \$405.00; \$405.50; \$406.00; \$406.50; \$407.00; \$407.50; \$408.00; \$408.50; \$409.00; \$409.50; \$410.00; \$410.50; \$411.00; \$411.50; \$412.00; \$412.50; \$413.00; \$413.50; \$414.00; \$414.50; \$415.00; \$415.50; \$416.00; \$416.50; \$417.00; \$417.50; \$418.00; \$418.50; \$419.00; \$419.50; \$420.00; \$420.50; \$421.00; \$421.50; \$422.00; \$422.50; \$423.00; \$423.50; \$424.00; \$424.50; \$425.00; \$425.50; \$426.00; \$426.50; \$427.00; \$427.50; \$428.00; \$428.50; \$429.00; \$429.50; \$430.00; \$430.50; \$431.00; \$431.50; \$432.00; \$432.50; \$433.00; \$433.50; \$434.00; \$434.50; \$435.00; \$435.50; \$436.00; \$436.50; \$437.00; \$437.50; \$438.00; \$438.50; \$439.00; \$439.5

## PACIFIC SLOPE.

The Railroad Official Changes—Tragedy in Fresno County—Board of Trade at Stockton—The Man—Fire at Lathrop—Young Man killed by Cars—Death of Mrs. Judge Wallace—Real Estate Boom in Napa Valley—Etc.

[SPECIAL DISPATCHES TO THE RECORD-UNION.]

The Railroad Changes—Official Circular. SAN FRANCISCO, May 5th.—The following circular has been issued by the Office of the President of the Central Pacific Railroad:

SAN FRANCISCO, Cal., May 2, 1882.  
Mr. A. N. Towne is this day appointed General Manager of the Central Pacific Railroad and issued lines.

Under the direction of the President, he will attend generally to the executive business of the company, having the management of its active business, heretofore attended to by the President, will herself fall upon Mr. Towne, the new General Manager. The newly appointed officials will assume the duties of their offices next Monday, May 8th.

Senate for an Accounting—Republican County Committee—Death Record.

SAN FRANCISCO, May 5th.—George W. Grayson has instituted suit in the Superior Court against the railroad companies for an accounting of their dealings together in mailing stocks. Plaintiff claims that there is now due him from defendant a sum exceeding \$37,000, for which judgment is asked.

The Republican County Committee held a mass meeting at 7 P.M. yesterday evening. Nineteen members were present. The Executive Committee reported progress in devising plans for conducting the campaign.

The mortuary report for the week shows the number of deaths to be 99—male 42, female 37. Corresponding week last year, 68.

The Gatherer Case—Anniversary Celebration—Ireland's Cause—Cheap Money.

SAN FRANCISCO, May 5th.—The testimony in the case of second mate Curtis, of the ship *Gatherer*, was concluded to-day, and arguments were heard.

The thirty-second anniversary of the California Bible Association will be celebrated in the Central Methodist Church Sunday afternoon.

Today evening a grand mass meeting will be held at Union Hall, to celebrate the release of Parnell and his associates from imprisonment, and the success of Ireland's cause.

The action by the Directors of the Hibernian Bank, at a meeting held last night, will tend to the political influence of its supporters. It was to reduce the rate of interest to 6 per cent per annum, the bank paying the mortgage tax, which amounts on an average to over 2 per cent, this year to probably 2½ per cent. All the real estate borrowers will probably pay about 3½ per cent per year for money.

The Texas Newspaper Men—Democratic Club.

SAN FRANCISCO, May 5th.—The members of the Texas Press Association left the city this afternoon for Monterey, and before returning to the city will visit Palo Alto, in response to an invitation extended by ex-Governor Stanford.

The newspaper forty-seven local Democratic Clubs met and elected a permanent organization by the election of officers. The clubs are preparing to make a vigorous campaign.

California Sportsmen's Association.

SAN FRANCISCO, May 5th.—This evening the California Sportsmen's Association held its annual meeting, and elected the following officers: President, J. T. Tracy; Vice-President, John E. Orr; Treasurer, M. Newhall; Secretary, J. J. Pitcher; Speaker; Chairman of the Board of Directors, Crittenton Robinson. All the clubs composing the Association were represented.

Too Much Water in His.

DUTCH FLAT, May 5th.—Another sickens officer, M. C. Barney, District Attorney of Sutter county, made his appearance here last night. After vain efforts to find some one in authority over the mine to inquire among our citizens, he finally got the mine manager to see him, to find he could learn there and did in the shape of a giant discharging a lively stream of water, which the pipe carelessly turned in his direction. The active efforts of the officer to dodge the impending disaster were to get the pipe turned to the boys in the mine. The officer naturally gave the boys to understand that he wanted less water in his by treating them to a five-gallon keg of beer, after which he concluded his business and left.

Real Estate in Napa Valley.

ST. HELENA, May 5th.—Almost every train that arrives here brings fresh delegations of parties in search of Napa Valley homes and vineyards, property being still in great demand. The few who are in Marin Forestfield, of Vallejo, bought 300 acres adjoining the Inglenook place for \$17,000. He was yesterday offered \$24,000 for his purchase by Philip Godart, of Silver City, Idaho, and refused it. The people generally are jubilant at the result. Many new buildings are going up in and around St. Helena.

Death of the Wife of Judge Wallace.

NAPA, May 5th.—Mrs. Wallace, wife of Judge William C. Wallace, of this city, died at the family residence to-day, after a lingering illness.

Stockton Board of Trade—Body Mangled by Car Wheels.

SACRAMENTO, May 5th.—Last night the organization of the Stockton Board of Trade was consummated, many of the most prominent business men of the city signing the articles of incorporation. The following gentlemen were elected as a Board of Directors: J. W. McCall, President; S. W. Sperry, E. H. Thrift, D. S. Eshleman, A. W. Simpson, C. M. Jackson, P. M. Henderson, J. D. Peters, H. O. Southworth and G. C. Hyatt, who elected H. O. Southworth as President; the Hon. J. T. Tracy, Vice-President; J. D. Peters, Treasurer; N. M. Orr, Secretary. The main object of the corporation is the advancement of all the interests initial to the prosperity of the city of Stockton and the tributary country.

This morning the organized members of a young men's were found on a railroad track near Castle switch six miles from this city. It is supposed that he was clinging to the break of one of the cars of the Galt accommodation train, and fell under the wheels. He was horribly mangled. From a bill of lading found in his pocket, his name is thought to be Fratz Schallaway.

Fire at Lathrop.

LATHROP, May 5th.—A fire broke out in the lumber mill of the Lathrop Lumber Co. o'clock noon, which bid fair to prove a serious conflagration, but owing to the efforts of the citizens, who responded to a man, the fire was put out. Loss, \$1,000; fully insured.

Contract Lst.

MODESTO, May 5th.—The Board of Supervisors has let the contract to build a new bridge across the Tuolumne river, about a mile below Modesto, to the Pacific Bridge Company. Price, about \$2,000. This is the first of a series of bridges to be built across the various rivers in Stanislaus county.

Hand Affray Between Farmers—Sand-storm.

FRESNO, May 5th.—E. Hammer shot and killed A. McCall near Salsbury to-day. The trouble grew out of road matters. Hammer discharged five bullets into McCall's body. No particular. The sheriff has gone to the scene of the affray. McCall formerly resided in Santa Clara county. They were both farmers.

A fearful sand-storm, accompanied by a north wind, prevails here this afternoon.

Fire at Sierra City.

DOWNIEVILLE, May 5th.—A fire broke out in Sierra City this evening about 9 o'clock, and destroyed the Catholic church, Oliva's saloon and Castagna's store.

Assault.

TUCSON, May 5th.—It is generally believed here that the main body of Loco's band has

not yet been defeated, although the military have had two successful skirmishes with them. The fight and defeat of the band by General Garcia across the line was with the advance body of the hostiles, who had the women, children and stock. Loco's band of warriors, numbering over 100, were held within sight of Gatelyville on the 25th, the soldiers having started in pursuit of the band which left the vicinity of Gatelyville with stolen stock, women and children on the 24th, and with which they had engaged in a skirmish the previous day. Well confirmed reports say that Loco, with about 125 warriors, is now across the line in the Tucson mountains. The death and capture of their squaws and children will make Loco desperate, and if the pursuit of the military is to keep the bloody fight of the campaign but a little longer, any day, it will have already come to an end.

Outlawry but no Outrages.

TRUCKEE, May 5th.—Great indignation is expressed here over the President's proclamation declaring Arizona in a state of turmoil. Prominent citizens talk of calling an indignation meeting, and by voice and resolution demand the President's removal from office, as he is not fit to be a member of the executive branch, and is not fit for his service. His orders will be obeyed and respected strongly.

President of the Central Pacific Railroad.

The statement that ex-Governor Leland Stanford was to retire from active duties is an entire mistake, and its publication is without either foundation or authority. It is understood, however, that the majority of the active business hereafter to be attended to by the President will herself fall upon Mr. Towne, the new General Manager. The newly appointed officials will assume the duties of their offices next Monday, May 8th.

Senate for an Accounting—Republican County Committee—Death Record.

SAN FRANCISCO, May 5th.—George W. Grayson has instituted suit in the Superior Court against the railroad companies for an accounting of their dealings together in mailing stocks. Plaintiff claims that there is now due him from defendant a sum exceeding \$37,000, for which judgment is asked.

The Republican County Committee held a mass meeting at 7 P.M. yesterday evening. Nineteen members were present. The Executive Committee reported progress in devising plans for conducting the campaign.

The mortuary report for the week shows the number of deaths to be 99—male 42, female 37. Corresponding week last year, 68.

The Gatherer Case—Anniversary Celebration—Ireland's Cause—Cheap Money.

SAN FRANCISCO, May 5th.—The testimony in the case of second mate Curtis, of the ship *Gatherer*, was concluded to-day, and arguments were heard.

The thirty-second anniversary of the California Bible Association will be celebrated in the Central Methodist Church Sunday afternoon.

Today evening a grand mass meeting will be held at Union Hall, to celebrate the release of Parnell and his associates from imprisonment, and the success of Ireland's cause.

The action by the Directors of the Hibernian Bank, at a meeting held last night, will tend to the political influence of its supporters. It was to reduce the rate of interest to 6 per cent per annum, the bank paying the mortgage tax, which amounts on an average to over 2 per cent, this year to probably 2½ per cent. All the real estate borrowers will probably pay about 3½ per cent per year for money.

The Texas Newspaper Men—Democratic Club.

SAN FRANCISCO, May 5th.—The members of the Texas Press Association left the city this afternoon for Monterey, and before returning to the city will visit Palo Alto, in response to an invitation extended by ex-Governor Stanford.

The newspaper forty-seven local Democratic Clubs met and elected a permanent organization by the election of officers. The clubs are preparing to make a vigorous campaign.

California Sportsmen's Association.

SAN FRANCISCO, May 5th.—This evening the California Sportsmen's Association held its annual meeting, and elected the following officers: President, J. T. Tracy; Vice-President, John E. Orr; Treasurer, M. Newhall; Secretary, J. J. Pitcher; Speaker; Chairman of the Board of Directors, Crittenton Robinson. All the clubs composing the Association were represented.

Too Much Water in His.

DUTCH FLAT, May 5th.—Another sickens officer, M. C. Barney, District Attorney of Sutter county, made his appearance here last night. After vain efforts to find some one in authority over the mine to inquire among our citizens, he finally got the mine manager to see him, to find he could learn there and did in the shape of a giant discharging a lively stream of water, which the pipe carelessly turned in his direction. The active efforts of the officer to dodge the impending disaster were to get the pipe turned to the boys in the mine. The officer naturally gave the boys to understand that he wanted less water in his by treating them to a five-gallon keg of beer, after which he concluded his business and left.

Real Estate in Napa Valley.

ST. HELENA, May 5th.—Almost every train that arrives here brings fresh delegations of parties in search of Napa Valley homes and vineyards, property being still in great demand. The few who are in Marin Forestfield, of Vallejo, bought 300 acres adjoining the Inglenook place for \$17,000. He was yesterday offered \$24,000 for his purchase by Philip Godart, of Silver City, Idaho, and refused it. The people generally are jubilant at the result. Many new buildings are going up in and around St. Helena.

Death of the Wife of Judge Wallace.

NAPA, May 5th.—Mrs. Wallace, wife of Judge William C. Wallace, of this city, died at the family residence to-day, after a lingering illness.

Stockton Board of Trade—Body Mangled by Car Wheels.

SACRAMENTO, May 5th.—The members of the Stockton Board of Trade were consummated, many of the most prominent business men of the city signing the articles of incorporation. The following gentlemen were elected as a Board of Directors: J. W. McCall, President; S. W. Sperry, E. H. Thrift, D. S. Eshleman, A. W. Simpson, C. M. Jackson, P. M. Henderson, J. D. Peters, H. O. Southworth and G. C. Hyatt, who elected H. O. Southworth as President; the Hon. J. T. Tracy, Vice-President; J. D. Peters, Treasurer; N. M. Orr, Secretary. The main object of the corporation is the advancement of all the interests initial to the prosperity of the city of Stockton and the tributary country.

This morning the organized members of a young men's were found on a railroad track near Castle switch six miles from this city. It is supposed that he was clinging to the break of one of the cars of the Galt accommodation train, and fell under the wheels. He was horribly mangled. From a bill of lading found in his pocket, his name is thought to be Fratz Schallaway.

Fire at Lathrop.

LATHROP, May 5th.—A fire broke out in the lumber mill of the Lathrop Lumber Co. o'clock noon, which bid fair to prove a serious conflagration, but owing to the efforts of the citizens, who responded to a man, the fire was put out. Loss, \$1,000; fully insured.

Contract Lst.

MODESTO, May 5th.—The Board of Supervisors has let the contract to build a new bridge across the Tuolumne river, about a mile below Modesto, to the Pacific Bridge Company. Price, about \$2,000. This is the first of a series of bridges to be built across the various rivers in Stanislaus county.

Hand Affray Between Farmers—Sand-storm.

FRESNO, May 5th.—E. Hammer shot and killed A. McCall near Salsbury to-day. The trouble grew out of road matters. Hammer discharged five bullets into McCall's body. No particular. The sheriff has gone to the scene of the affray. McCall formerly resided in Santa Clara county. They were both farmers.

A fearful sand-storm, accompanied by a north wind, prevails here this afternoon.

Fire at Sierra City.

DOWNIEVILLE, May 5th.—A fire broke out in Sierra City this evening about 9 o'clock, and destroyed the Catholic church, Oliva's saloon and Castagna's store.

Assault.

TUCSON, May 5th.—It is generally believed here that the main body of Loco's band has

not yet been defeated, although the military have had two successful skirmishes with them. The fight and defeat of the band by General Garcia across the line was with the advance body of the hostiles, who had the women, children and stock. Loco's band of warriors, numbering over 100, were held within sight of Gatelyville on the 25th, the soldiers having started in pursuit of the band which left the vicinity of Gatelyville with stolen stock, women and children on the 24th, and with which they had engaged in a skirmish the previous day. Well confirmed reports say that Loco, with about 125 warriors, is now across the line in the Tucson mountains. The death and capture of their squaws and children will make Loco desperate, and if the pursuit of the military is to keep the bloody fight of the campaign but a little longer, any day, it will have already come to an end.

Outlawry but no Outrages.

TRUCKEE, May 5th.—Great indignation is expressed here over the President's proclamation declaring Arizona in a state of turmoil. Prominent citizens talk of calling an indignation meeting, and by voice and resolution demand the President's removal from office, as he is not fit to be a member of the executive branch, and is not fit for his service. His orders will be obeyed and respected strongly.

President of the Central Pacific Railroad.

The statement that ex-Governor Leland Stanford was to retire from active duties is an entire mistake, and its publication is without either foundation or authority. It is understood, however, that the majority of the active business hereafter to be attended to by the President will herself fall upon Mr. Towne, the new General Manager. The newly appointed officials will assume the duties of their offices next Monday, May 8th.

Senate for an Accounting—Republican County Committee—Death Record.

SAN FRANCISCO, May 5th.—The following circular has been issued by the Office of the President of the Central Pacific Railroad:

SAN FRANCISCO, Cal., May 2, 1882.  
Mr. A. N. Towne is this day appointed General Manager of the Central Pacific Railroad and issued lines.

Under the direction of the President, he will attend generally to the executive business of the company, having the management of its active business, heretofore attended to by the President, will herself fall upon Mr. Towne, the new General Manager. The newly appointed officials will assume the duties of their offices next Monday, May 8th.

Senate for an Accounting—Republican County Committee—Death Record.

SAN FRANCISCO, May 5th.—George W. Grayson has instituted suit in the Superior Court against the railroad companies for an accounting of their dealings together in mailing stocks. Plaintiff claims that there is now due him from defendant a sum exceeding \$37,000, for which judgment is asked.

The Republican County Committee held a mass meeting at 7 P.M. yesterday evening. Nineteen members were present. The Executive Committee reported progress in devising plans for conducting the campaign.

The mortuary report for the week shows the number of deaths to be 99—male 42, female 37. Corresponding week last year, 68.

The Gatherer Case—Anniversary Celebration—Ireland's Cause—Cheap Money.

SAN FRANCISCO, May 5th.—The testimony in the case of second mate Curtis, of the ship *Gatherer*, was concluded to-day, and arguments were heard.

The thirty-second anniversary of the California Bible Association will be celebrated in the Central Methodist Church Sunday afternoon.

Today evening a grand mass meeting will be held at Union Hall, to celebrate the release of Parnell and his associates from imprisonment, and the success of Ireland's cause.

The action by the Directors of the Hibernian Bank, at a meeting held last night, will tend to the political influence of its supporters. It was to reduce the rate of interest to 6 per cent per annum, the bank paying the mortgage tax, which amounts on an average to over 2 per cent, this year to probably 2½ per cent. All the real estate borrowers will probably pay about 3½ per cent per year for money.

The Texas Newspaper Men—Democratic Club.

SAN FRANCISCO, May 5th.—The members of the Texas Press Association left the city this afternoon for Monterey, and before returning to the city will visit Palo Alto, in response to an invitation extended by ex-Governor Stanford.

Too Much Water in His.